

Land Reconstruction, Currently Mined Land (acre)

Definition

Restoring currently mined land to an acceptable form and for a planned use.

Scope

This standard applies to the identification, removal, stockpiling, and replacement of soil materials on currently mined land. It also applies to nearby areas that can be affected by the mining of various minerals or commodities.

Purpose

To prevent permanent damage to soil and water resources in and near mined areas. To restore the productivity of soils to permit their premining use or a more intensive use. To control erosion, preserve the environment, and provide an economic use of the land.

Conditions where practice applies

Currently mined areas that will be adversely affected by mining practices.

Planning considerations

1. With use of a soil survey, evaluate soils significant to reconstruction operations and identify prime farmland.
2. Evaluate water and other related resources.
3. Consider locations for storage of soil material, access roads, and possible permanent impoundments.
4. Consider measures for placement of spoil, water disposal, replacement of soil material, restoration of soil productivity, and revegetation of disturbed areas.

5. Prepare a reclamation plan specifying required procedures for conducting reconstruction operations.

Specifications guide

Site preparation. Areas shall be cleared of trees, logs, brush, rubbish, and other undesirable materials. Areas to be preserved, including those containing vegetation, stream corridors, natural springs, or other important features, shall be properly identified.

Removal of material for soil reconstruction. All upper soil horizons to be used in reconstructing the soil shall be removed from the immediate area before drilling for blasting, mining, or any surface disturbance other than removal of woody plants.

All the A horizon shall be removed for use as surface soil on disturbed areas. If the A horizon is less than 6 in. thick, enough material, other than bedrock, immediately below the A horizon can be removed and used to obtain this thickness. If the total thickness of the available material is less than 6 in., all unconsolidated material can be used.

If the area is prime farmland or soil productivity consistent with that needed for post mining use is required, the B horizon or part of the C horizon or other underlying layers suitable for root development shall be removed and segregated for use as subsoil. The minimum depth of the soil and the soil material to be reconstructed shall be 48 in. or be equal to the depth of the subsurface horizon in the natural soil, whichever is less. If the natural soil is underlain by root-inhibiting layers, such as bedrock or fragipan, depth can be less than the minimum depth.

Removal of overburden material for use as topsoil. Selected overburden material can be substituted for or be added to the material in the A and B horizons if it is demonstrated by field observations and chemical and physical laboratory analyses that the overburden material or the overburden and topsoil mixture is better suited to use in restoring the capability and productivity of the land than the material originally in the A and B horizons. Analyses can include determination of pH value; sulfide content; percentage of organic material; nitrogen, phosphorus, and potassium; texture; and available water capacity. Field-site trials or greenhouse tests may be needed to ascertain the feasibility of using overburden material.

If it is determined that the overburden material is suitable, it must be removed, segregated, and replaced according to the requirements specified in this standard.

Storage of soil material. If it is impractical to spread the material immediately after the land is regraded, it must be stockpiled. Stockpiles shall be selectively located and protected against wind and water erosion, unnecessary compaction, and contamination by undesirable materials. An effective vegetative cover or other suitable practices can provide adequate protection.

Replacement of soil material. Before spreading topsoil, the regraded areas must be scarified or otherwise treated to eliminate slippage surfaces and to promote root penetration.

Topsoil shall be spread in a manner that:

1. Insures that the position and thickness of each horizon is equivalent to those in the undisturbed soil.

2. Prevents excess compaction. The bulk density of the reconstructed soil when moist must permit the soil to support plant growth at a level equivalent to that of a similar layer in the undisturbed soil.

3. Protects the topsoil against wind and water erosion before it is seeded and planted.

Nutrients and soil amendments. After the topsoil has been spread on the disturbed areas, nutrients and soil amendments shall be applied according to the needs determined by soil tests.